

A REVISION OF THE WORLD SPECIES OF SINOPHORUS FOERSTER

(HYMENOPTERA: ICHNEUMONIDAE) : SUPPLEMENT 1

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ABSTRACT

Four new species of Sinophorus Foerster (Hymenoptera: Ichneumonidae) are described from the palearctic region: albotibialis, amplificatus, centunculus, katoensis. New distributional and host data are included for tumidus Sanborne and ventosus Sanborne.

This paper represents the first supplement to my recent revision of the world species of Sinophorus (Sanborne, 1984). Additional supplements will follow as new species are discovered. Four new species from the palearctic region are described below (albotibialis, amplificatus, centunculus, katoensis) and run through my key with explanations on how to differentiate them from the species identified in the couplets. The last part of the paper deals with new distribution and host records for two nearctic species (tumidus Sanborne, ventosus Sanborne).

Sinophorus albotibialis, new sp.

DIAGNOSIS. Head approx. 2.1 x as wide as height of face and clypeus. Face with medium sized punctures which are separated by distance less than the dia. of single puncture. Lower 0.5 of mesopleuron with medium sized punctures which are separated by distance less than or equal to dia. of single puncture. Hind femur approx. 4.3-4.9 x as long as deep. First abdominal tergite without a lateral, longitudinal groove. Suture separating 1st abd. tergite from sternite approx. 0.5 below midheight of petiole in females, 0.7 below in males. Hind tarsal claw approx. 1.8 x as long as empodium, with teeth confined to basal 0.5 of claw. Ovipositor approx. 2.0-2.1 x as long as hind femur. Tergites 2, 3, 4 of male with narrow apical white bands. Hind tibia extensively white. Hind wing with nervellus intercepted.

ETYMOLOGY. The species epithet refers to the hind tibia which is extensively white.

HOLOTYPE. Female. Head approx. 2.1 x as wide as height of face and clypeus, broadly triangular in frontal view. Antennal flagellum with 33 articles. Face with medium sized punctures which are separated by distance less than dia. of single puncture. Clypeus polished, with medium sized punctures,

weakly convex, weakly separated from face, with anterior margin moderately convex. Anterior 0.4 of clypeus produced below lower margins of compd. eyes. Mandible with upper tooth about as long as lower tooth. Gena approx. as wide as basal width of mandible. Temple, in lateral view, approx. 0.9 x as long as compd. eye, in dorsal view, moderately (approaching strongly) sloping inwardly. Mesopleuron with coarse wrinkling between antero-dorsal lobe and speculum which extends to mesopleural fovea. Speculum conspicuously punctate above. Mesopleural fovea elongate-oval, moderately impressed. Lower 0.5 of mesopleuron with medium sized punctures which are separated by distance less than or equal to dia. of single puncture. Propodeum with basal transverse carina forming round-bottomed 'V' shaped border around areola. Costula complete. Median longitudinal carina strong, regular medially, moderately strong, regular at junction with basal transverse carina. Lateral longitudinal carina absent. Propodeal trough narrow, deeply excavated. Areola polished, approx. 0.3 x as long, 0.7 x as wide as petiolar area, and 0.3 x as wide as distance between propodeal spiracles. Petiolar area polished, with approx. 13 moderately coarse transverse wrinkles. Hind femur approx. 4.5 x as long as deep. Hind tarsal claw approx. 1.8 x as long as empodium, with 5 moderately strong, weakly slanting teeth which are confined to basal 0.5 of claw. First abdominal tergite without a lateral longitudinal groove. Suture separating 1st abd. tergite from sternite approx. 0.5 below midheight of petiole. Petiole approx. 1.2 x as long as postpetiole. Postpetiole with moderately dense pubescence. Ovipositor approx. 2.1 x as long as hind femur, 1.4 x as long as thorax, weakly upcurving, not tapering, with depth at midlength less than width of hind basitarsus. Tip of dorsal valve of ovipositor approx. 1.1 x as long as 5th hind tarsal segment. Fore wing approx. 5.8 mm. long, with 2nd recurrent vein straight, perpendicular. Hind wing with nervellus intercepted near basal 0.2

Colour. Head, base and apex of mandible, thorax, abdomen, coxae, trochanters, black. Median area of mandible, maxillary palpus, tegula, external surfaces of fore and middle tibiae, base and externo-median surface of hind tibia, basal 0.6 of hind basitarsus, whitish. All tibiae, internal surfaces of fore and middle tibiae, interno-median surface of hind tibia, ferruginous. Hind tibia with sub-basal band pale brown and apical band dark brown. Labial palpus, apical 0.4 of hind basitarsus, brown.

Variation. Based upon one other female. Antennal flagellum with 33-34 articles. Costula complete or incomplete. Median longitudinal carina moderately strong to strong, regular to irregular at junction with basal transverse carina. Hind femur 4.3-4.5 x as long as deep. Ovipositor approx. 2.0-2.1 x as long as hind femur. No significant colour variation observed.

MALE. Based upon single specimen. As in female except that suture separating 1st abd. tergite from sternite approx. 0.7 below mid height of petiole, hind basitarsus with basal 0.9 white, and abdomen with white apical bands on tergites 2, 3, and 4.

Holotype. Female. U.S.S.R. Tashkent region, Parkent, V-20-1980, Kasparyan. Deposited in Zoological Institute, Academy of Sciences, Leningrad.  
Paratypes. U.S.S.R. Tashkent region, same data as for holotype (ASL); Turkmenistan, Krasno Znamya, Murgab River, 4-V-1980 (1 male), Kasparyan, (ASL).

Host and Biology. There are no rearing records for this species. The three known specimens were all captured in the month of May.

REMARKS. This species belongs to the Pleuralis Group and is closely related to punctifrons Sanborne (palearctic). This species traces to couplet 12 in my key (Sanborne, 1984) to palearctic females where it will key out to punctifrons. It differs from this species in having small punctures on the face and mesopleuron and in the extensively white hind tibia. The male traces to couplet 14 where it keys to sticticalae from the palearctic region. It differs from this species in the presence of apical white bands on tergites 2, 3, and 4 and in having a much less swollen hind femur. Some males may also trace to couplet 15 where it will key to juniperinus. It differs from this species in having a much narrower propodeal trough, much less swollen hind femur, and much more extensively white hind tibia.

Sinophorus amplificatus, new sp.

DIAGNOSIS. Known only from female holotype. Head approx. 2.0 x as wide as height of face and clypeus. Face with punctures which are separated by distance less than dia. of single puncture. Mandible with upper tooth longer than lower tooth. First abd. tergite with a very weakly impressed lateral, longitudinal groove. Suture separating 1st abd. tergite from sternite approx. 0.4 below mid height of petiole. Hind femur approx. 3.9 x as long as deep. Ovipositor approx. 2.0 x as long as hind femur, strongly upcurving, not tapering. Hind wing with nervellus not intercepted. Hind femur without an apical black band. Hind tibia black and ferruginous banded.

ETYMOLOGY. The species epithet is from the latin word meaning enlarged, in reference to the swollen hind femur.

HOLOTYPE. Female. Head approx. 2.0 x as wide as height of face and clypeus, triangular in frontal view. Face moderately rugoso-punctate, the punctures of medium size and separated by distance less than dia. of single puncture. Clypeus strongly shagreened, matte, moderately convex, with medium sized punctures which are separated by distance less than dia. of single puncture. Anterior 0.4 of clypeus produced below lower margins of compd. eyes. Mandible with upper tooth longer than lower tooth. Gena approx. 1.2 x as wide as basal width of mandible. Temple, in lateral view, approx. as long as compd. eye, in dorsal view, moderately sloping inwardly. Mesopleuron with moderately coarse wrinkling between antero-lateral lobe and speculum which extends to mesopleural fovea. Speculum densely punctate above. Mesopleural fovea elongate-oval, weakly impressed. Lower 0.5 of mesopleuron strongly shagreened, matte, with medium sized punctures which are separated by distance less than or equal to dia. of single puncture. Propodeum with basal transverse carina forming flat-bottomed 'V' shaped border around areola. Costula present laterally. Median longitudinal carina strong medially, weak and highly irregular at junction with basal transverse carina. Lateral longitudinal carina absent. Propodeal trough moderately broad, deeply excavated. Areola strongly shagreened, with several transverse wrinkles, approx. 0.3 x as long and 0.6 x as wide as petiolar area, and 0.4 x as wide as distance between propodeal spiracles. Hind femur approx. 3.9 x as long

as deep. Hind tarsal claw approx. 1.5 x as long as empodium, with 5 moderately strong teeth which are confined to basal 0.5 of claw. First abd. tergite with a very weakly impressed lateral, longitudinal groove. Suture separating 1st abd. tergite from sternite approx. 0.4 below mid height of petiole. Petiole approx. 1.2 x as long as postpetiole. Postpetiole with sparse dorsal pubescence. Ovipositor approx. 2.0 x as long as hind femur, strongly upcurving, not tapering, with depth at mid length slightly less than width of hind basitarsus. Tip of dorsal valve of ovipositor approx. 0.8 x as long as 5th hind tarsal segment. Fore wing approx. 6.0 mm. Hind wing with nervellus not intercepted.

Colour. Head, base and apex of mandible, thorax, abdomen, coxae, middle and hind trochanters, apical 0.6 of hind basitarsus, black. Tegula, basal 0.4 of hind basitarsus, whitish. Maxillary palpus pale ferruginous, labial palpus brown basally, ferruginous apically. Fore trochanter with basal segment dark ferruginous internally, yellowish externally. Femora, internal surface of fore tibia, middle tibia, median band of hind tibia, ferruginous. Hind tibia with sub-basal and apical bands brown.

Holotype. Female. U.S.S.R. Primorskij Kraj, Khasan, Golubin, Utes, 7-8. 9. 1982, Tobias. Deposited in zoological Institute, Academy of Sciences, Leningrad.

Host and Biology. Unknown

REMARKS. This species is very closely related to the nearctic species constrictus but is easily distinguished by the longer, more slender, much more strongly upcurving ovipositor. This species traces to fuscicarpus (couplet 7) in my key to palearctic females and differs from this species in having black and ferruginous hind legs and hind wing with nervellus not intercepted.

Sinophorus centunculus, new sp.

DIAGNOSIS. Known only from female holotype. Head approx. 2.2 x as wide as height of face and clypeus. Face with small punctures which are separated by distance less than dia. of single puncture. Mesopleural fovea sub-round, deeply impressed. Lower 0.5 of mesopleuron with medium sized punctures which are separated by distance less than dia. of single puncture. Hind femur approx. 4.4 x as long as deep. First abd. tergite with a moderately impressed lateral, longitudinal groove. Suture separating 1st abd. tergite from sternite approx. 0.2 below mid height of petiole. Ovipositor approx. 1.8 x as long as hind femur, weakly tapering. Hind femur with baso-ventral area and apex black. Hind tibia black and ferruginous banded.

ETYMOLOGY. The species epithet is from the latin word meaning 'small patch', in reference to the baso-ventral black patch on the hind femur.

HOLOTYPE. Female. Head approx. 2.2 x as wide as height of face and clypeus, triangular in frontal view. Antennal flagellum with 32 articles. Face with small punctures which are separated by distance less than dia. of single puncture. Clypeus shagreened, matte, weakly but evenly convex, weakly

separated from face, with anterior margin nearly straight. Anterior 0.3 of clypeus produced below lower margins of compd. eyes. Mandible with upper tooth longer than lower tooth. Gena approx. as wide as basal width of mandible. Temple, in lateral view, approx. 1.1 x as long as compd. eye, in dorsal view, moderately sloping inwardly. Mesopleuron with moderately coarse wrinkling between antero-lateral lobe and speculum which does not extend to mesopleural fovea. Speculum conspicuously punctate above. Mesopleural fovea sub-round, deeply impressed. Lower 0.5 of mesopleuron with medium sized punctures which are separated by distance less than dia. of single puncture. Propodeum with basal transverse carina forming 'V' shaped border around areola. Costula absent. Median longitudinal carina moderately strong medially, weak and highly irregular basally at junction with basal transverse carina. Lateral longitudinal carina absent. Propodeal trough broad, deeply excavated. Areola approx. 0.4 x as long, 0.7 x as wide as petiolar area, and 0.4 x as wide as distance between propodeal spiracles, with several weak transverse wrinkles. Petiolar area with approx. 15 moderately strong transverse wrinkles. Hind femur approx. 4.4 x as long as deep. Hind tarsal claw approx. 1.4 x as long as empodium, with 5 moderately strong teeth which do not extend to base of tip. First abd. tergite with a moderately impressed lateral, longitudinal groove. Suture separating 1st abd. tergite from sternite approx. 0.2 below mid height of petiole. Petiole approx. 1.4 x as long as postpetiole. Postpetiole with very sparse dorsal pubescence. Ovipositor approx. 1.8 x as long as hind femur, 1.4 x as long as thorax, moderately upcurving, very weakly tapering towards tip, with depth at mid length approx. equal to width of hind basitarsus. Tip of dorsal valve of ovipositor approx. 1.2 x as long as 5th hind tarsal segment. Fore wing approx. 5.0 mm. Hind wing with nervellus not intercepted.

Colour. Head, base and apex of mandible, thorax, abdomen, coxae, trochanters, base of middle femur, baso-ventral patch and apex of hind femur, internal surface of middle tibia, sub-basal and apical bands of hind tibia, apical 0.7 of hind basitarsus, black. Tegula, labial palpus, brown. Median area of mandible, maxillary palpus, fore femur, middle femur, hind femur (except black areas noted), fore tibia, external surface of middle tibia, median band of hind tibia, ferruginous. Basal 0.3 of hind basitarsus, whitish.

Holotype. Female. U. S. S. R. Alma-ata, 2500-2800 m., 7-VII-1979, Kasparyan. Deposited in Zoological Institute, Academy of Sciences, Leningrad.

Host and Biology. Unknown.

REMARKS. This species is related to nigritellus and villosus (Albidus Group). It differs from both species in the ferruginous colour of the median band of the hind tibia and from villosus in the longer, more strongly upcurving ovipositor. The species will trace to couplet 18 in my key to palearctic females where it would best fit the description given for 18a. This will lead to couplet 19 where it would best fit the description of turionus. The much shorter ovipositor will easily separate centunculus from turionus.

Sinophorus katoensis, new sp.

DIAGNOSIS. Head 2.0-2.1 x as wide as height of face and clypeus. Face and lower 0.5 of mesopleuron with small punctures which are separated by distance less than or equal to dia. of single puncture. Hind femur approx. 4.0-4.3 x as long as deep in males, 4.3-4.5 x in females. First abd. tergite with a weakly impressed lateral longitudinal groove. Suture separating 1st abd. tergite from sternite approx. 0.2-0.3 below mid height of petiole in females, 0.3-0.4 below in males. Ovipositor approx. 2.0-2.1 x as long as hind femur, not tapering, moderately upcurving. Hind wing with nervellus intercepted. Abdomen of females with postpetiole and abd. tergites 2,3 rufous but sometimes abdomen entirely black. Male abdomen with narrow apical white bands on tergites 2-5. Hind femur entirely ferrugineous in females. Hind tibia black and white banded.

ETYMOLOGY. The species is named for the holotype collecting locality of Kato, Manchuria.

HOLOTYPE. Female. Head approx. 2.0 x as wide as height of face and clypeus, triangular in frontal view. Antennal flagellum with 35 articles. Face with small punctures which are separated by distance less than or equal to dia. of single puncture. Clypeus strongly shagreened, matte, with small punctures which are separated by distance less than or equal to dia. of single puncture, weakly separated from face, with anterior margin weakly convex, the anterior 0.3 of clypeus produced below lower margins of compd. eyes. Mandible with upper tooth longer than lower tooth. Gena approx. as wide as basal width of mandible. Temple, in lateral view, approx. 0.6 x as long as compd. eye, in dorsal view, strongly sloping inwardly. Mesopleuron with weak wrinkling between antero-dorsal lobe and speculum which extends to mesopleural fovea. Speculum conspicuously punctate above. Mesopleural fovea sub-round, deeply impressed. Lower 0.5 of mesopleuron strongly shagreened, matte, with small punctures which are separated by distance approx. equal to dia. of single puncture. Propodeum with basal transverse carina forming round-bottomed 'V' shaped border around areola. Costula complete. Median longitudinal carina moderately strong. Lateral longitudinal carina moderately strong, highly irregular. Propodeal trough narrow basally, moderately broad apically, moderately excavated. Areola shagreened, weakly polished, approx. 0.3 x as wide, 0.6 x as long as petiolar area, and 0.3 x as wide as distance between propodeal spiracles. Petiolar area with approx. 18 moderately coarse transverse wrinkles. Hind femur approx. 4.2 x as long as deep. Hind tarsal claw approx. 1.3 x as long as empodium, with 6 moderately strong, erect teeth which extend slightly beyond basal 0.5 of claw. First abd. tergite with a moderately impressed lateral, longitudinal groove. Suture separating 1st abd. tergite from sternite approx. 0.3 below mid height of petiole. Petiole approx. 1.4 x as long as postpetiole. Postpetiole with sparse dorsal pubescence. Ovipositor approx. 2.2 x as long as hind femur, not tapering, moderately upcurving, with depth at mid length approx. equal to width of hind basitarsus. Tip of dorsal valve of ovipositor approx. 1.1 x as long as 5th hind tarsal segment. Fore wing approx. 6.0 mm. long. Second recurrent vein moderately sloping. Hind wing with nervellus intercepted near basal 0.2.

Colour. Head, base and apex of mandible, abdominal petiole, abdominal tergites 4 to apex, sub-basal and apical bands of hind tibia, apical 0.3 of hind basitarsus, black. Antennae fuscous. Median area of mandible, palpi, tegula, external surfaces of fore and middle tibiae, externo-median surface of hind tibia, basal 0.7 of hind basitarsus, whitish. Trochanters, interno-median surface of hind tibia, pale ferrugineous. Coxae, femora, internal surfaces of fore and middle tibiae, ferrugineous. Postpetiole, tergites 1 and 2, rufous.

Variation. Head 2.0-2.1 x as wide as height of face and clypeus. Antennal flagellum with 34-37 articles. Propodeum with areola weakly polished to matte. Hind femur 4.2-4.5 x as long as deep. Ovipositor approx. 2.0-2.1 x as long as hind femur. Fore, middle coxae sometimes replaced dorsally by black. Hind femur sometimes with weak apical dark band. Postpetiole rufous to black. Abdomen sometimes entirely black.

MALE. Head approx. 2.0 x as wide as height of face and clypeus. Hind femur approx. 4.0-4.3 x as long as deep. Suture separating 1st abd. tergite from sternite approx. 0.3-0.4 below mid height of petiole. Colour generally more melanistic than female. Palpi white to ferrugineous. Hind coxa extensively to entirely black. Hind femur usually with distinct apical dark band. Sub-basal and apical bands of hind tibia wider than in female. Petiolar segment of abd. black. Abdominal tergites 2-5 often with narrow apical white bands or abdomen entirely black.

Holotype. Female. China: Manchuria, Kato, XII.2.?, ex. Pyrausta nubilalis. Deposited in Canadian National Insect Collection, Ottawa, Canada.

Paratypes. 78 females, 30 males. Same data as for holotype except that emergence dates range from Dec. to Feb. Two females, three males deposited in P.M. Sanborne collection, the remainder in the United States National Museum, Washington.

Host and Biology. All known specimens were reared from Pyrausta nubilalis

REMARKS. This species belongs in the Xanthostomus Group and is very closely related to exartemae (palearctic). It will trace to exartemae (couplet 37) in my key to the palearctic females. It differs from this species primarily in colour (abdomens of katoensis often extensively rufous, abdomens of exartemae always black). Females of katoensis with entirely black abdomens can be distinguished from exartemae by the entirely ferrugineous hind femur (sometimes a very weak dark band present, this band always distinct in exartemae). Males of katoensis will key out as exartemae and I have not been able to find characters which will distinguish between the two.

#### New Distribution and Host Records

Sinophorus tumidus Sanborne: Host. Homeosoma electellum (lepidoptera) on wild sunflower. New Distribution Records. Ontario: Cumberland, Stittsville. Saskatchewan: Bienfait, Trossachs, Weyburn.

Sinophorus ventosus Sanborne: Host. Stibadium spumosum (lepidoptera) on Helianthus annuus (sunflower). New Distribution Record. Texas: Bushland.

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## REFERENCES

- Sanborne, Michael. 1984. A revision of the world species of Sinophorus Foerster (Hymenoptera: Ichneumonidae). Mem. Amer. Ent. Inst., no. 38. 403 pp.

## ERRATA

World Species of Sinophorus. Mem. Amer. Ent. Inst., no. 38.

- P. 33. Para. 2, line 11. 'makes' should read 'makers' (2 x).  
 P. 39. Para. 3, line 4. Underline Sinophorus and Campoplex.  
 P. 40. Couplet 1a. Place brackets around Fig. 143 (i.e., (Fig. 143)).  
 Couplet 5b. Fibs. should read Figs.  
 P. 45. Couplet 38b. (50) should read (51).  
 P. 48. Couplet 57b. 2.1-2.0 should read 2.1-3.0  
 P. 61. Couplet 2b. 1.9-2.0 should read 2.1-2.7  
 P. 63. Couplet 9b. 2.1-1.7 should read 2.1-2.7  
 P. 224. Para. 1, line 4. After first 'distance' stroke out 'approx. distance'  
 line 6. Remove second 'than lower'  
 P. 305. Para. 2, line 2. Remove 'face' at end of line.